



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Observations and Measurements of the Planet Vesta. By John Jerome Schroeter, *F.R.S.* Read May 28, 1807. [*Phil. Trans.* 1807, p. 245.]

The observations contained in Mr. Schroeter's communication, comprise those of Dr. Olbers, made at Bremen, from the 29th of March to the 6th of May, and those of Mr. Bessel at Lilienthal, from the 1st of April to the 11th of May; from which it appears that this planet, now called Vesta, became stationary between the 8th and 11th of May, and is now progressive.

Mr. Schroeter endeavoured also to ascertain her magnitude; with magnifying powers of 150 and 300 applied to a 15-foot reflector she seemed equal to a star of the 6th magnitude, but without any appearance of a disc. Mr. Schroeter, and his assistant, both saw the planet at that time with the naked eye.

As they had formerly observed Ceres, Pallas, and Juno, with a 13-foot reflector, and with eye-glasses magnifying 136 and 288 times, they now examined Vesta with the same telescope and the same powers, and found her appearance to be exactly the same, her apparent diameter not exceeding $\frac{1}{1000}$ ths of a second, which Mr. Schroeter says is only one half the apparent diameter of the 4th satellite of Saturn. Mr. Schroeter considers the intensity and unsteadiness of its light, together with its extraordinary smallness, as very remarkable for a body which, according to the calculations of Dr. Gauss, is in the same region between Mars and Jupiter, in which the three other lately discovered planets perform their revolutions round the sun.

A new Eudiometer, accompanied with Experiments, elucidating its Application. By William Hasledine Pepys, *Esq.* Communicated by Charles Hatchett, *Esq.* *F.R.S.* Read June 4, 1807. [*Phil. Trans.* 1807, p. 247.]

After some preliminary observations upon the important part that atmospheric air performs in numerous processes of nature and art, and upon the variety of other gaseous bodies now known, Mr. Pepys traces cursorily the progress of eudiometry from Hales, who first observed a contraction upon the admixture of atmospheric air with an air that he had obtained from spirit of nitre and pyrites. The cause of this contraction, and the nature of the nitrous gas that occasioned it, were more distinctly discovered by Dr. Priestley, who also pointed out the use to which it might be applied for ascertaining the purity of air; and he employed for that purpose a graduated tube, which he denominated an eudiometer.

Phosphorus, and the liquid sulphurets, were afterwards substituted for nitrous gas; but these being found tardy in their operation, or if accelerated by heat fallacious in their results, Mr. Davy proposed the solutions of sulphate, or muriate of iron impregnated with nitrous gas, as sufficiently sudden in their action, and more uniformly free from contamination by other gases.